

**REMARKS**

Following entry of this amendment, claims 26-37 and 39 are present in this application. Claim 26 is an independent claim drawn to a method for the manufacture of prosthetic molded parts for the dental sector with the aid of galvanic metal deposition. The remaining claims depend therefrom. Claim 37 has been amended to correct an obvious typographical error therein. Claim 39 has been amended to provide proper antecedent basis for the gold sulphite bath recited therein. Claims 38 and 40-49 have been canceled without prejudice or disclaimer to the subject matter contained therein. Accordingly, Applicant respectfully submits that no new matter within the meaning of 35 U.S.C. 132 is added by the amendments.

Claim 37 stands rejected under 35 U.S.C. 112, first paragraph as being based specification lacking sufficient written description of the subject matter. Claims 38, 40, 41, 47 and 48 stand rejected under 35 U.S.C. 112, second paragraph as being indefinite. Claims 26-36 stand rejected under 35 U.S.C. 103(a) as being obvious over Rogers (U.S. Patent No. 4,288,298) in view of Loch (U.S. Patent No. 4,666,567) or Martin et al. (U.S. Patent No. 6,071,398). Claims 37-39 stand rejected under 35 U.S.C. 103(a) as being obvious over Rogers (U.S. Patent No. 4,288,298) in view of Loch (U.S. Patent No.

4,666,567) or Martin et al. (U.S. Patent No. 6,071,398) as applied above, and further in view of Laude et al. (U.S. Patent No. 4,192,723). Claims 40-42 stand rejected under 35 U.S.C. 102(b) as being anticipated by, or in the alternative as being obvious over, Rogers (U.S. Patent No. 4,288,298), Yamashita (U.S. Patent No. 4,820,387) or Wismann (4,488,940); claims 43-47 stand rejected as being anticipated by Lutz (U.S. Patent No. 902,892); claims 43, 45, 46 and 47 stand rejected as being anticipated by Soderberg et al. (U.S. Patent No. 1,759,171); and claims 43, 44, 48 and 49 stand rejected as being anticipated by Metzger (U.S. Patent No. 4,331,527).

With entry of the above attached amendments and following remarks, Applicant respectfully submits that the claims are now in condition for allowance.

#### **1. Rejection of Claim 37**

##### **Under 35 U.S.C. 112, First Paragraph**

Claims 37 stands rejected under 35 U.S.C. 112, first paragraph as being based on a specification lacking a proper written description for the reasons set forth in the office action.

**RESPONSE**

Applicant respectfully traverses this rejection and requests reconsideration and withdrawal thereof.

Applicant has amended claims 37 to recite that the galvanic deposition takes place in a gold sulphite bath, instead of the originally claimed gold sulphate bath. Applicant has thus removed the basis for this rejection, and respectfully requests reconsideration and withdrawal thereof.

**2. Rejection of Claims 38, 40, 41, 47 and 48**

**Under 35 U.S.C. 112, Second Paragraph**

The Examiner has rejected claims 38, 40, 41, 47 and 48 under 35 U.S.C. 112, second paragraph as being indefinite for the reasons set forth in the office action.

**RESPONSE**

Applicant has canceled claims 38 and 40-49 without prejudice or disclaimer to the subject matter contained therein. Applicant has thus removed the basis. Accordingly, Applicant respectfully requests reconsideration and withdrawal of this rejection.

**3. Rejection of Claims 26-36**

**Under 35 U.S.C. 103(a)**

Claims 26-36 stand rejected under 35 U.S.C. 103(a) as being obvious over Rogers (U.S. Patent No. 4,288,298) in view of Loch (U.S. Patent No. 4,666,567) or Martin et al. (U.S. Patent No. 6,071,398) for the reasons set forth in the Office Action.

**RESPONSE**

Applicant respectfully traverses this rejection and requests reconsideration and withdrawal thereof.

The references of record do not teach or suggest applicant's inventive subject matter as a whole, as recited in the rejected claims. Further, there is no teaching or suggestion in these references which would lead the ordinary skilled artisan to modify the references to derive the subject matter as defined in the amended claims.

The U.S. Supreme Court in *Graham v. John Deere Co.*, 148 U.S.P.Q. 459 (1966) held that non-obviousness was determined under § 103 by (1) determining the scope and content of the prior art; (2) ascertaining the differences between the prior art and the claims at issue; (3) resolving the level of ordinary skill in the

art; and, (4) inquiring as to any objective evidence of nonobviousness.

To establish a *prima facie* case of obviousness, the Examiner must establish: (1) that some suggestion or motivation to modify the references exists; (2) a reasonable expectation of success; and (3) that the prior art references teach or suggest all the claim limitations. Amgen, Inc. v. Chugai Pharm. Co., 18 USPQ2d 1016, 1023 (Fed. Cir. 1991); In re Fine, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988); In re Wilson, 165 USPQ 494, 496 (C.C.P.A. 1970).

A *prima facie* case of obviousness must also include a showing of the reasons why it would be obvious to modify the references to produce the present invention. See Ex parte Clapp, 277 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). The Examiner bears the initial burden to provide some convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings. Id. at 974.

**A. The present inventive subject matter**

Claims 26 is drawn to a method for the manufacture of prosthetic molded parts for the dental sector with the aid of galvanic metal deposition, in which galvanic deposition at least partly takes place by pulse-plating, characterized in that gold or

a gold alloy is deposited and that the percentage pulse duration, based on the total deposition time, is at least 50%. The remaining claims depend from claim 26 and therefore contain all of the limitations found therein.

**B. The prior art**

Rogers (U.S. Patent No. 4,288,298) discloses the formation of dental crowns and the use of electrodeposition of a metal onto a plurality of substrates. The apparatus includes a retainer for electrolytes, a first electrode with a plurality of substrates, a second electrode with a plurality of zones, mounting means for each electrode and means for making a connection therebetween. The substrate is a tooth replica having a conductive outer layer.

Loch (U.S. Patent No. 4,666,567) discloses a method and apparatus for electroplating the surface of a conductive substrate using an electroplating solution having a low concentration of electroplating ions. Forward and reverse polarity current pulses are alternatively provided between the part to be plated and an anode in the electroplating bath.

Martin (U.S. Patent No. 6,071,398) discloses a method of electrodepositing metal onto a substrate. The method includes applying a pulsed periodic reverse current across the electrodes of a plating cell utilizing a peak reverse current density and peak

forward current density; and varying the ratio of peak reverse current density to peak forward current density to provide metal deposits of uniform thickness and appearances on the substrate.

**C. The References do not Teach the Limitations Required**  
**by the Presently Pending Claims**

The differences between Applicant's inventive subject matter and the cited references are readily apparent from their independent and distinct disclosures and claims. Claims 26 is drawn to a method for the manufacture of **prosthetic molded parts** for the dental sector with the aid of galvanic metal deposition. The galvanic deposition at least partly takes place by pulse-plating. The method is characterized in that gold or a gold alloy is deposited and that the percentage pulse duration, based on the total deposition time, **is at least 50%**. Thus, the inventive subject matter is directed to galvanic deposition of **3-dimensional** prosthetic parts in the dental field.

Applicant respectfully submits that Rogers clearly does not disclose pulse-plating. While there is deposition of gold from an electroplating solution to form an object, the current provided by the power supply **will be maintained "substantially constant at a selected level."** (col. 6, lines 36-46, emphasis added). Further,

Rogers only teaches a polarity reversal of the anode and cathode, which is necessary to bring the gold into the electroplating solution in order to avoid depletion of the gold in the electroplating solution. (col. 5, lines 40-47). Thus, Applicant respectfully submits that Rogers fails to teach pulse-plating with a percentage pulse duration, as is claimed in the present application.

Turning now to the Loch reference, Applicant respectfully submits that Loch does not pertain to the field of dentistry, much less with 3-dimensional objects. Instead, Loch is directed to electroplating surfaces of conductive substrates. This is readily apparent from the description in the patent, especially Fig. 3, which shows a part being plated. Furthermore, another difference between the present claims and Loch is that Loch indicates in the Abstract that the electroplating solution has "a low concentration of plating ions." Therefore, Applicant respectfully submits that one of ordinary skill in the art would not be drawn to the disclosure of Loch to add the pulse-plating feature to the disclosure of Rogers in the manufacturing of 3-dimensional dental parts made from gold or gold alloys, since Loch teaches only electroplating parts and requires a low concentration of plating ions. The lack of motivation to combine the references is due to the divergent aims of each reference, namely Rogers is concerned



with manufacturing a 3-dimensional piece via electroforming, while Loch is concerned with electroplating an object.

The Examiner also cites Martin against the claims. Applicant notes that the present application validly claims priority to October 2, 1998 (i.e., German Patent Application No. 198 45 506), while Martin was published on June 6, 2000. Thus, Martin is not a valid reference against the present application. The text of the PCT case on which the present application is based is identical to the text of the German priority application. If the Examiner deems it necessary, Applicant will supply a certified copy of the German application along with a certified English translation thereof.

However, even if Martin was a valid reference, Applicant submits that the disclosure of Martin does not overcome the deficiencies of Rogers and Loch. In particular, as with the Loch reference, Martin does not disclose the manufacture of 3-dimensional dental parts, as Martin only discloses electroplating a substrate. The process of Martin is exemplified by the deposition of copper from an acidic electrolyte. There is no motivation in Martin to combine it with either Rogers or Loch in an attempt to achieve the present claims.

Therefore, Applicant respectfully submits that the claims are unobvious over the combination of references, and respectfully requests reconsideration and withdrawal of the rejection.

#### **4. Rejection of Claims 37-39**

##### **Under 35 U.S.C. 103(a)**

Claims 37-39 stand rejected under 35 U.S.C. 103(a) as being obvious over Rogers (U.S. Patent No. 4,288,298) in view of Loch (U.S. Patent No. 4,666,567) or Martin et al. (U.S. Patent No. 6,071,398) as applied above, and further in view of Laude et al. (U.S. Patent No. 4,192,723) for the reasons set forth in the Office Action.

#### **RESPONSE**

Applicants respectfully traverse this rejection and request reconsideration and withdrawal thereof.

The references of record do not teach or suggest applicant's inventive subject matter as a whole, as recited the rejected claims. Further, there is no teaching or suggestion in these references which would lead the ordinary skilled artisan to modify the references to derive the subject matter as defined in the amended claims.

The U.S. Supreme Court in *Graham v. John Deere Co.*, 148 U.S.P.Q. 459 (1966) held that non-obviousness was determined under § 103 by (1) determining the scope and content of the prior art; (2) ascertaining the differences between the prior art and the

claims at issue; (3) resolving the level of ordinary skill in the art; and, (4) inquiring as to any objective evidence of nonobviousness.

To establish a *prima facie* case of obviousness, the Examiner must establish: (1) that some suggestion or motivation to modify the references exists; (2) a reasonable expectation of success; and (3) that the prior art references teach or suggest all the claim limitations. Amgen, Inc. v. Chugai Pharm. Co., 18 USPQ2d 1016, 1023 (Fed. Cir. 1991); In re Fine, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988); In re Wilson, 165 USPQ 494, 496 (C.C.P.A. 1970).

A *prima facie* case of obviousness must also include a showing of the reasons why it would be obvious to modify the references to produce the present invention. See Ex parte Clapp, 277 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). The Examiner bears the initial burden to provide some convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings. Id. at 974.

**A. The present inventive subject matter**

Claim 37 depends from claim 26 and adds the further limitation of the galvanic deposition taking place from a gold sulphite bath. Likewise, Claim 39 depends from claim 37 and adds the further limitation of the gold sulphite bath having a gold concentration of

more than 30 g/l. Both claims 37 and 39 depend from claim 26 and therefore contain all of the limitations found therein, namely, they are drawn to a method for the manufacture of prosthetic molded parts for the dental sector with the aid of galvanic metal deposition, in which galvanic deposition at least partly takes place by pulse-plating, characterized in that gold or a gold alloy is deposited and that the percentage pulse duration, based on the total deposition time, is at least 50%.

**B. The prior art**

As is discussed above, Rogers (U.S. Patent No. 4,288,298) discloses the formation of dental crowns and the use of electrodeposition of a metal onto a plurality of substrates. The apparatus includes a retainer for electrolytes, a first electrode with a plurality of substrates, a second electrode with a plurality of zones, mounting means for each electrode and means for making a connection therebetween. The substrate is a tooth replica having a conductive outer layer.

As is also discussed above, Loch (U.S. Patent No. 4,666,567) discloses a method and apparatus for electroplating the surface of a conductive substrate using an electroplating solution having a low concentration of electroplating ions. Forward and reverse polarity current pulses are alternatively provided between the part

to be plated and an anode in the electroplating bath.

Further, Martin (U.S. Patent No. 6,071,398) discloses a method of electrodepositing metal onto a substrate. The method includes applying a pulsed periodic reverse current across the electrodes of a plating cell utilizing a peak reverse current density and peak forward current density; and varying the ratio of peak reverse current density to peak forward current density to provide metal deposits of uniform thickness and appearances on the substrate.

Lastly, Laude et al. (U.S. Patent No. 4,192,723) discloses an aqueous solution of gold and ammonium sulfite complex that is stable under slightly acidic conditions and can be used for preparing electrolytic baths for plating gold and gold alloys. The solutions have great flexibility and a particularly long working life.

**C. The References do not Teach the Limitations Required**  
**by the Presently Pending Claims**

Since claims 37 and 39 depend from claim 26 and contain all of the limitation found therein, if claim 26 is found to be unobvious over the references, so to must claims 37 and 39.

The reasons for claim 26 being unobvious over Rogers in view of Loch or Martin are given above. In particular, the disclosure of Rogers fails to teach all of the claimed limitations, and there

is no motivation to combine the references due to the divergent nature of the purposes for each reference. Also, Martin was published after the validly claimed priority date of this application. Even so, Martin does not cure the deficiencies of the other two references. Applicant hereby incorporates the above arguments into the response to this rejection.

The Examiner relies on Laude et al. to remedy the deficiency of the other references with respect to the use of a gold sulphite bath and the concentration of gold therein. However, Applicant respectfully submits that Laude et al. are concerned with the gold sulphite bath to be used in electroplating, and not with the manufacture of 3-dimensional objects by electroforming. Thus, Laude et al. suffers from the same deficiency as Loch and Martin in failing to provide motivation for combining with the other references. And even if combined with the other references, the combination would still not achieve the present claims.

Therefore, Applicant respectfully submits that the claims are unobvious over the combination of references, and respectfully requests reconsideration and withdrawal of the rejection.

**5. Rejection of Claims 40-49  
under 35 U.S.C. 102 (b)**

Claims 40-42 stand rejected under 35 U.S.C. 102(b) as being

anticipated by, or in the alternative as being obvious over, Rogers (U.S. Patent No. 4,288,298), Yamashita (U.S. Patent No. 4,820,387) or Wismann (4,488,940); claims 43-47 stand rejected as being anticipated by Lutz (U.S. Patent No. 902,892); claims 43, 45, 46 and 47 stand rejected as being anticipated by Soderberg et al. (U.S. Patent No. 1,759,171); and claims 43, 44, 48 and 49 stand rejected as being anticipated by Metzger (U.S. Patent No. 4,331,527), all for the reasons set forth in the office action.

#### **RESPONSE**

Applicant has canceled claims 40-49 without prejudice or disclaimer to the subject matter contained therein. Therefore, Applicant has removed the basis for this rejection, and respectfully requests reconsideration and withdrawal thereof.

#### **CONCLUSION**

In view of the foregoing, applicant respectfully requests the Examiner to reconsider and withdraw the rejection of the claims and to allow all of the claims pending in this application.

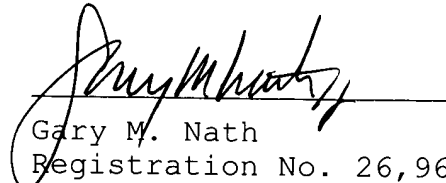
If the Examiner has any questions or wishes to discuss this matter, the Examiner is welcomed to telephone the undersigned attorney.

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Respectfully submitted,

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